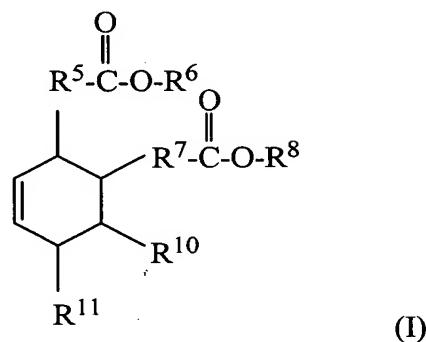


WHAT IS CLAIMED IS:

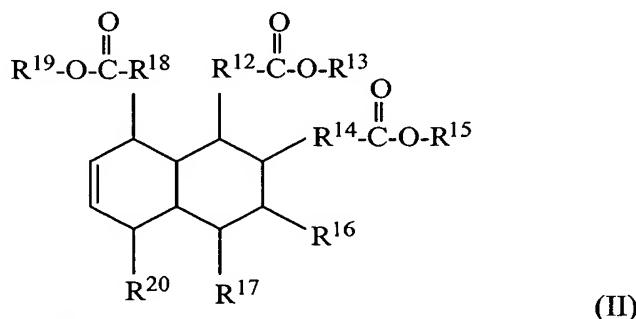
1. A plasticized elastomer composition comprising rubber selected from the group consisting of natural rubber, synthetic rubber, and a combination thereof, and a cyclic dimerate or trimerate ester plasticizer compound having formula I, II, or a mixture thereof:



wherein R⁵ and R⁷, same or different, are a C₃-C₂₄ hydrocarbon chain, straight chain or branched, either saturated or having 1 to 6 carbon-to-carbon double bonds;

R⁶ and R⁸, same or different, are a C₃-C₂₄ alkyl radical, straight chain or branched, saturated, or unsaturated containing 1 to 3 carbon-to-carbon double bonds; and

R¹⁰ and R¹¹, same or different, are a C₃-C₂₄, saturated hydrocarbon chain, straight chain or branched; or an unsaturated C₃-C₂₄, hydrocarbon chain, straight chain or branched, having 1 to 6 carbon-to-carbon double bonds;

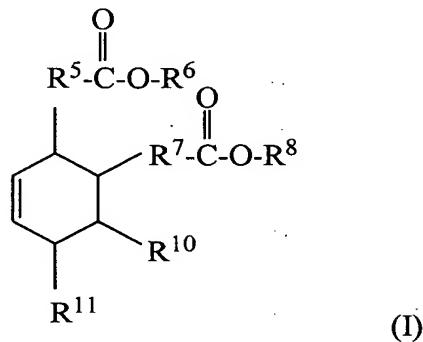


wherein R¹², R¹⁴ and R¹⁸, same or different, are a C₃-C₂₄ hydrocarbon chain, straight chain or branched, either saturated or having 1 to 6 carbon-to-carbon double bonds;

R¹³, R¹⁵ and R¹⁹, same or different, are a C₃-C₂₄ alkyl radical, straight chain or branched, saturated, or unsaturated containing 1 to 3 carbon-to-carbon double bonds; and

R¹⁶, R¹⁷ and R²⁰, same or different, are a C₃-C₂₄ saturated hydrocarbon chain, straight chain or branched; or unsaturated C₃-C₂₄ hydrocarbon chain, straight chain or branched, containing 1 to 6 carbon-to-carbon double bonds.

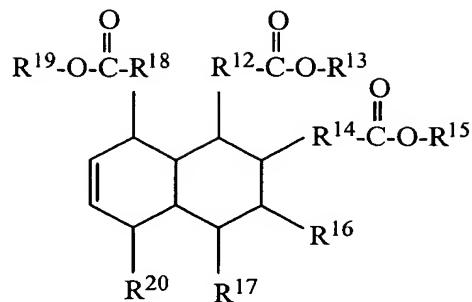
2. A composition in accordance with claim 1, wherein the plasticizer is selected from the group consisting of formula I, II, and a combination thereof:



wherein R⁵ and R⁷, are a C₆-C₂₄ hydrocarbon chain, straight chain or branched; either saturated or having 1 to 3 carbon-to-carbon double bonds;

R⁶ and R⁸, same or different, are a C₃-C₁₈ alkyl radical, straight chain or branched, saturated, or unsaturated containing 1 to 3 carbon-to-carbon double bonds, and

R¹⁰ and R¹¹, same or different, are C₃-C₁₈ saturated hydrocarbon chain, straight chain or branched; or an unsaturated hydrocarbon chain, straight chain or branched, containing 1 to 3 carbon-to-carbon double bonds;



(II)

wherein R¹², R¹⁴ and R¹⁸, same or different, are a C₆-C₂₄ hydrocarbon chain, straight chain or branched, either saturated or containing 1 to 3 carbon-to-carbon double bonds;

R¹³, R¹⁵ and R¹⁹, same or different, are a C₃-C₁₈ alkyl radical, straight chain or branched, saturated, or unsaturated containing 1 to 3 carbon-to-carbon double bonds; and

R¹⁶, R¹⁷ and R²⁰, same or different, are a C₃-C₁₈ saturated hydrocarbon chain, straight chain or branched; or an unsaturated C₃-C₁₈ hydrocarbon-chain, straight chain or branched, containing 1 to 3 carbon-to-carbon double bonds.

3. A composition in accordance with claim 1, wherein the plasticizer compound having formula I, II, or a mixture thereof is present in an amount from about 0.1 parts to about 50 parts by weight per 100 parts of rubber.

4. A composition in accordance with claim 1, wherein the plasticizer compound having formula I, II, or a mixture thereof is present in an amount from about 2 parts to about 40 parts by weight per 100 parts of rubber.

5. A composition in accordance with claim 1, wherein the plasticizer compound having formula I, II, or a mixture thereof is present in an amount from about 10 parts to about 35 parts per 100 parts of rubber.

6. A composition in accordance with claim 1, wherein the plasticizer is an unsaturated diester formed by the reaction of a C₃₆ dimer acid and a C₃-C₁₈ alcohol, straight chain or branched, saturated, or unsaturated containing 1 to 3 carbon-to-carbon double bonds.

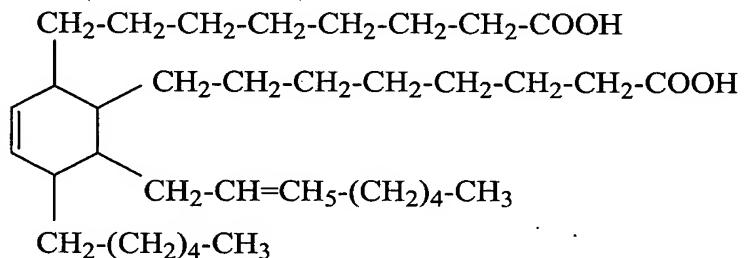
7. A composition in accordance with claim 6, wherein the alcohol is 2-ethylhexyl alcohol.

8. A composition in accordance with claim 6, wherein the alcohol is tridecyl alcohol.

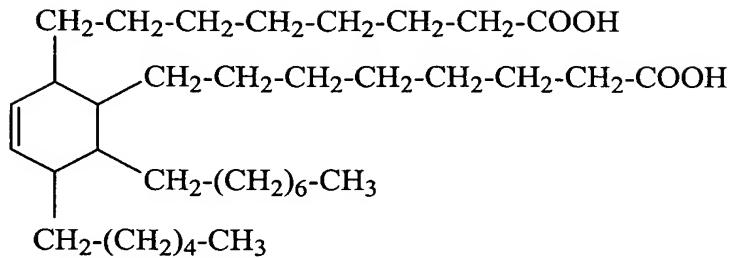
9. A composition in accordance with claim 6, wherein the alcohol is oleyl alcohol.

10. A composition in accordance with claim 6, wherein the alcohol is n-butyl alcohol.

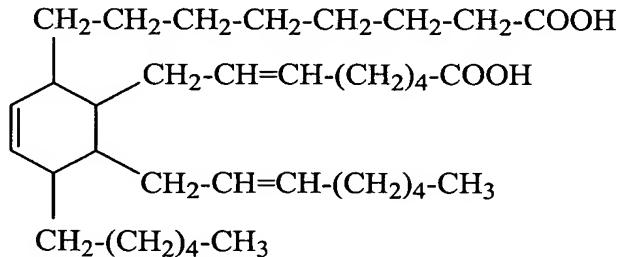
11. A composition in accordance with claim 1, wherein the plasticizer comprises the following dimer acid reacted with a C₃-C₂₄ alcohol:



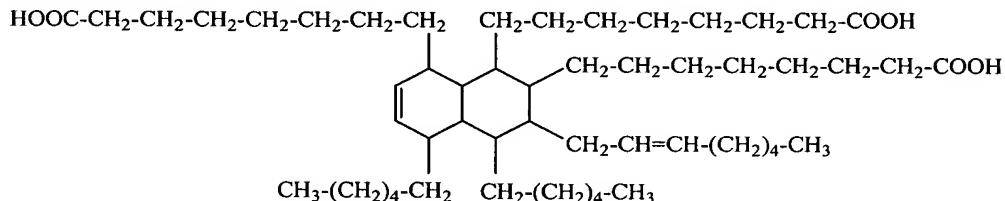
12. A composition in accordance with claim 1, wherein the plasticizer comprises the following dimer acid reacted with a C₃-C₂₄ alcohol:



13. A composition in accordance with claim 1, wherein the plasticizer comprises the following dimer acid reacted with a C₃-C₂₄ alcohol:



14. A composition in accordance with claim 1, wherein the plasticizer is the reaction product of a C₃-C₂₄ alcohol with a tricarboxylic acid, having the following formula:



15. A composition in accordance with claim 1, wherein the plasticizer is a combination of compounds represented by formula I and II.

16. A composition in accordance with claim 15, wherein the plasticizer is a reaction product of a C₃-C₂₄ alcohol straight chain or branched, saturated, or unsaturated having 1 to 3 carbon-to-carbon double bonds, with a dimer acid having CAS # 61788-89-4.

17. A composition in accordance with claim 16, wherein the alcohol is 2-ethylhexyl alcohol.

18. A composition in accordance with claim 16, wherein the alcohol is tridecyl alcohol.

19. A rubber composition in accordance with claim 16, wherein the alcohol is oleyl alcohol.

20. A composition in accordance with claim 16, wherein the alcohol is n-butyl alcohol.

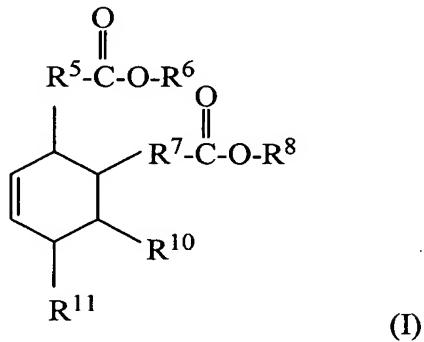
21. The composition in accordance with claim 1, wherein R⁵, R⁷, R¹², R¹⁴ are fatty acid residues derived from animal or vegetable fatty acids.

22. The composition of claim 21, wherein the fatty acids are selected from the group consisting of butter; lard; tallow; grease; herring; menhaden; pilchard; sardine; babassu; castor; coconut; corn; cottonseed; jojoba; linseed; oiticia; olive; palm; palm kernel; peanut; rapeseed; safflower; soya; sunflower; tall; tung; and mixtures thereof.

23. The composition of claim 21, wherein the fatty acid residues are selected from the group consisting of hexanoic; octanoic; decanoic; dodecanoic; 9-dodecenoic; tetradecanoic; 9-tetradecenoic; hexadecanoic; 9-hexadecenoic; octadecanoic; 9-octadecenoic; 9-octadecenoic, 12-hydroxy; 9, 12-octadecadienoic; 9, 12, 15-octadecatrienoic; 9, 11, 13-octadecatrienoic; 9, 11, 13-octadecatrienoic; 4-oxo; octadecatrenoic; eicosanoic; 11-eicosanoic; eicosadienoic; eicosatrienoic; 5, 8, 11, 14-eicosatetraenoic; eicosapentaenoic; docosanoic; 13-docosenoic; docosatetraenoic; 4, 8, 12, 15, 19-docosapentaenoic; docosahexaenoic; tetracosanoic; and 4, 8, 12, 15, 18, 21-tetracosahexaenoic.

24. A method of plasticizing an elastomeric composition, said elastomeric composition including one or more natural or synthetic rubbers, and a rubber vulcanizing agent, comprising adding to said rubber composition, in an amount

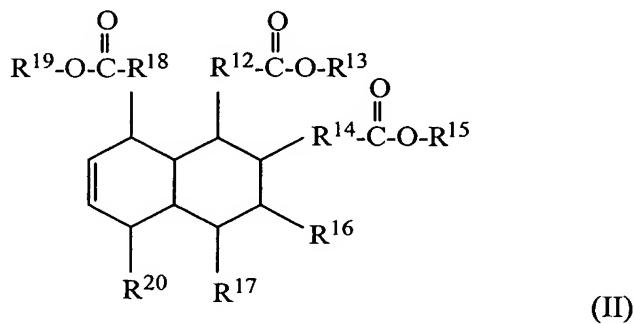
of about 0.1 parts to about 50 parts by weight per 100 parts of rubber in the composition, a cyclic ester plasticizer of formula I, II, or mixtures thereof:



wherein R⁵ and R⁷, same or different, are a C₃-C₂₄ hydrocarbon chain, straight chain or branched, either saturated or having 1 to 6 carbon-to-carbon double bonds;

R⁶ and R⁸, same or different, are a C₃-C₂₄ alkyl radical, straight chain or branched; and

R¹⁰ and R¹¹, same or different, are a C₃-C₂₄, saturated hydrocarbon chain, straight chain or branched; or an unsaturated C₃-C₂₄, hydrocarbon chain, straight chain or branched, having 1 to 6 carbon-to-carbon double bonds;



wherein R¹², R¹⁴ and R¹⁸, same or different, are a C₃-C₂₄ hydrocarbon chain, straight chain or branched, either saturated or having 1 to 6 carbon-to-carbon double bonds;

R¹³, R₁ and R¹⁹, same or different, are a C₃-C₂₄ alkyl radical, straight chain or branched, saturated, or unsaturated containing 1 to 3 carbon-to-carbon double bonds; and

R¹⁶, R¹⁷ and R²⁰, same or different, are a C₃-C₂₄ saturated hydrocarbon chain, straight chain or branched; or unsaturated C₃-C₂₄ hydrocarbon chain, straight chain or branched, containing 1 to 6 carbon-to-carbon double bonds.

25. The method of claim 24, wherein the cyclic ester plasticizer is added in an amount from about 2 parts to about 40 parts by weight per 100 parts of rubber.

26. The method of claim 24, wherein the cyclic ester plasticizer is added in an amount from about 10 parts to about 35 parts per 100 parts of rubber.